Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of:	)	
	)	
LightSquared Technical Working Group Report	)	IB Docket No. 11-109
	)	
	)	

COMMENTS OF
THE CITY OF SEATTLE
AND
THE ASSOCIATION OF CITY-COUNTY INFORMATION SYSTEMS MANAGERS OF THE WASHINGTON STATE

The City of Seattle ("the City") and the Association of City-County Information Systems Managers of Washington State ("ACCIS") submit these Comments in response to the Commission's Public Notice in this proceeding.[1] In these comments, the City and ACCIS address potential interference to utility, public safety and general government use of GPS. The City of Seattle and ACCIS desire significant additional testing under the modified deployment approach proposed in Lightsquared's recommendations submitted June 30, 2011, before further deployment of this network is allowed to proceed.

[1] *Public Notice: Comment Deadlines Established Regarding the LightSquared Technical Working Group Report, DA 11-1133, released June 30, 2011.*

1. **City of Seattle**. The City of Seattle is a municipal government serving the 600,000 residents of Seattle. The City provides a number of municipal services to its residents including public safety (law enforcement, firefighting, emergency medical, emergency management), utilities (electrical, water, wastewater, solid waste), transportation and general government. Significantly, the City operates a water utility (part of Seattle Public Utilities) which provides drinking water to over 1,200,000 people in the region through two extensive watersheds in the Cascade Mountains east of the City proper. The City of Seattle also operates an electrical utility which provides electricity to approximately 750,000 residents of Seattle and adjacent suburbs. This power is generated primarily from dams located in several locations in Washington State. Virtually all of the City of Seattle's public safety and utility services rely upon accurate, real-time Global Positioning Systems for reliable operations.
2. **Association of City-County Information Systems Managers in Washington State (ACCIS).** ACCIS is the organization in the State of Washington composed of the chief information system officers from the cities and counties throughout the state. ACCIS' goals include representing county/city information systems interests to state and federal officials,
3. **Concurrence with NPSTC**. The City of Seattle and ACCIS concur in the comments submitted separately by the National Public Safety Technology Council and its member organizations. While NPSTC's comments primarily addressed the effect of Lightsquared's proposed operations on public safety services, the City of Seattle and ACCIS believe the same adverse effects would occur in utilities and transportation.
4. **City and County Government Services and GPS**. Accurate GPS information is very important to the public safety, utilities, and transportation services provided by Seattle's City government,

and the City and County governments throughout Washington State. GPS is used for:

4.1. wireless 911 location,

4.2. support of public safety, utility and transportation dispatch operations,

4.3. automatic vehicle location for police, fire, emergency medical, transportation and utility vehicles, equipment and personnel,

4.4. mapping/response directions to first and second responders,

4.5. shortest-path routing for fire apparatus in response to 911 calls,

4.6. synchronization of the City of Seattle's and King County's 800 MHz trunked radio simulcast system which is used for communications by the Seattle Police, Fire and Public Utilities departments and other similar departments throughout the County.

5. **LightSquared and FCC Actions**.

5.1. LightSquared submitted the Technical Working Group report to the Federal Communications Commission (the "Commission") on June 30, 2011 and the Commission promptly issued a Public Notice the same day requesting comments. The Commission's Public Notice stated the Technical Working Group report identified significant technical issues related to potential LightSquared operations in the upper portion of the L-Band, which is the closest to the band used for GPS. The Public Notice states:

> The tests demonstrated potentially significant interference between LightSquared operations in the upper portion of the band and various GPS receivers. The tests also identified some interference issues in the lower 10 MHz portion of the band. The overall conclusion of the testing is that transmissions in the upper 10 MHz channel — the channel nearest to the 1559-1610 MHz GPS band — will adversely affect the performance of a significant number of legacy GPS receivers.[2]

5.2. The Commission's Public Notice also stated that LightSquared submitted its recommendations to address the problems identified by the working group:

> In particular, LightSquared indicates its willingness to: (1) operate at lower power than permitted by its existing FCC authorization; (2) agree to a "standstill" in the terrestrial

[2] *Public Notice* at page 2.

use of its Upper 10 MHz frequencies immediately adjacent to the GPS band; and (3) commence terrestrial commercial operations only on the lower 10 MHz portion of its spectrum and to coordinate and share the cost of underwriting a workable solution for the small number of legacy precision measurement devices that may be at risk.[3]

5.3. The Commission invited comment on LightSquared's recommendations, any alternative proposals to enable both GPS devices and L-band mobile broadband to co-exist and any general comments on the technical working group report in general.

6. **The City of Seattle's and ACCIS' observations and comments are these**:

6.1. LightSquared's new proposal (paragraph 4.2 above) is not mentioned in the working group report, and key elements of the new proposal (using initially only the lower half of the band) were not tested as such. Only a limited test of some lower-band transmissions was tested on a small sampling of cell phones; even that showed interference for over 12% of units tested. No lower-band testing was done for high precision GPS equipment.

6.2. LightSquared's new proposal (paragraph 4.2 above) relies upon redesign and replacement of GPS receivers and infrastructure. Again, such reconfigurations were not tested, and these reconfigurations may require complicated new filtering technology to protect sensitive GPS receivers. The technology for such advanced filtering that has yet to be achieved even in research labs; these proposed filtering technologies may not be available for many years pending research and development.

6.3. Because of the compressed schedule for testing and the significant number of different market segments that use GPS, testing for any one segment was fairly limited.

6.4. LightSquared itself recognizes that operation on its upper channel at 1545.2 to 1555.2 MHz closest to the 1559-1610 MHz GPS band would be a significant source of interference to many users of GPS, including public safety, utility and transportation agencies.

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[3] *Public Notice* at page 2.

6.5. LightSquared, in submitting the test results from the working group, also submitted a new proposal for modified operations (see paragraph 4.2 above). However this new proposal was not tested by the working group. Moreover, the significantly compressed schedule applied to the testing and review of test results leaves the City of Seattle with little confidence that there will be no interference to our public safety, transportation and utilities operations under LightSquared's modified deployment proposal.

6.6. Furthermore, the testing which was conducted at the FCC's direction encompassed too few devices – only 130 – and did not adequately test either public safety GPS devices or precision GPS devices.

7. **Full Testing Required**.

7.1. It is clear that the testing done to date confirms significant interference problems will occur if LightSquared's upper channel is deployed. There has been insufficient testing to determine if interference problems will occur when only the lower channel is deployed under LightSquared's modified proposal. The City of Seattle and ACCIS believe additional testing and analysis of the results is absolutely required, with full participation by the GPS industry and affected users such as local, state and the federal governments, and under a schedule which allows thorough analysis of the results.

7.2. Full testing of LightSquared's new proposal must be performed in both the lab and field environments. The field environment testing must include urban, suburban and rural/mountain environments. The field testing must include public safety, utility and transportation devices. The testing must be conducted with LightSquared's licensed power and its proposed reduced power. And sufficient time needs to be allocated to evaluate and analyze the test results.

8. **Comparison to Rebanding**. The City of Seattle's makes this request for additional testing based on our difficult experience with resolving interference issues "after the fact". The City is

presently in the throes of re-banding its 800 MHz radio systems used by the Seattle Police, Fire, Public Utilities and City Light departments under the Commission's order. The City is expending considerable time and effort to replace and upgrade subscriber equipment and fixed site radio equipment to resolve interference with frequencies licensed to Sprint Nextel by the Commission. Certain of the member cities and counties of ACCIS are also undergoing the re-banding process with similar experiences. Fortunately, in the case of LightSquared, there is already awareness and recognition that there is a potential interference problem, so it should be resolved before harmful interference has a chance to occur.

9. **Conclusion.** Failure to resolve these issues in advance of LightSquared's network deployments will result in millions and perhaps billions of dollars of potentially stranded expenditures by LightSquared and GPS users. More problematical is the danger to public safety throughout the State of Washington, and to the safety of the water and electrical supplies of the City of Seattle, should serious interference result with City of Seattle and ACCIS member jursidctions' GPS, radio and technology systems, and consumer devices with integrated GPS used when seeking those public safety services via calls to 911.

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(Signature page)

Respectfully submitted,

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